

University of Nebraska - Lincoln

DigitalCommons@University of Nebraska - Lincoln

Nebraska Tractor Tests

Tractor Test and Power Museum, The Lester F. Larsen

2013

Test 2058: John Deere 6140D

Nebraska Tractor Test Laboratory

University of Nebraska-Lincoln, tractortestlab@unl.edu

Follow this and additional works at: <https://digitalcommons.unl.edu/tractormuseumlit>



Part of the [Energy Systems Commons](#), [History of Science, Technology, and Medicine Commons](#), [Other Mechanical Engineering Commons](#), [Physical Sciences and Mathematics Commons](#), [Science and Mathematics Education Commons](#), and the [United States History Commons](#)

Laboratory, Nebraska Tractor Test, "Test 2058: John Deere 6140D" (2013). *Nebraska Tractor Tests*. 2499. <https://digitalcommons.unl.edu/tractormuseumlit/2499>

This Article is brought to you for free and open access by the Tractor Test and Power Museum, The Lester F. Larsen at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Nebraska Tractor Tests by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

NEBRASKA OECD TRACTOR TEST 2058—SUMMARY 878

JOHN DEERE 6140D DIESEL

9 SPEED

CHASSIS SERIAL NUMBERS 5xxxx AND HIGHER

POWER TAKE-OFF PERFORMANCE

Power HP (kW)	Crank shaft speed rpm	Gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Mean Atmospheric Conditions
MAXIMUM POWER AND FUEL CONSUMPTION					
Rated Engine Speed—(PTO speed—1065 rpm)					
116.39 (86.79)	2199	6.81 (25.76)	0.410 (0.249)	17.10 (3.37)	Fuel used during active exhaust regeneration - 0.47 gal (1.78 l) (see Note 1 p.2)
Rated Engine Speed - 2100 rpm					
120.65 (89.97)	2100	6.87 (26.02)	0.399 (0.243)	17.56 (3.46)	
Standard Power Take-off Speed (1000 rpm)					
121.06 (90.27)	2065	6.83 (25.84)	0.395 (0.240)	17.74 (3.49)	
Maximum Power (1 hour)					
122.79 (91.57)	1900	6.74 (25.52)	0.385 (0.234)	18.22 (3.59)	

VARYING POWER AND FUEL CONSUMPTION

116.39 (86.79)	2199	6.81 (25.76)	0.410 (0.249)	17.10 (3.37)	Air temperature
101.83 (75.94)	2262	6.29 (20.01)	0.433 (0.263)	16.19 (3.19)	73°F (23°C)
77.15 (57.53)	2287	5.15 (19.49)	0.468 (0.284)	14.99 (2.95)	Relative humidity
51.82 (38.64)	2300	3.96 (15.01)	0.536 (0.326)	13.07 (2.57)	26%
26.20 (19.54)	2301	2.87 (10.86)	0.767 (0.467)	9.13 (1.80)	Barometer
3.03 (2.26)	2300	1.88 (7.10)	4.336 (2.638)	1.62 (0.32)	28.83 Hg (97.63 kPa)

Maximum torque - 383 lb.-ft. (519 Nm) at 1450 rpm

Maximum torque rise - 37.7%

Torque rise at 1760 engine rpm - 29%

Power increase at 1900 engine rpm - 5.5%

DRAWBAR PERFORMANCE

UNBALLASTED - FRONT DRIVE ENGAGED

FUEL CONSUMPTION CHARACTERISTICS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp.°F (°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
Maximum Power—5th (B2) Gear									
99.35 (74.09)	6498 (28.90)	5.73 (9.22)	2200	9.0	0.478 (0.291)	14.66 (2.89)	187 (86)	59 (15)	28.79 (97.48)
75% of Pull at Maximum Power—5th (B2) Gear									
79.30 (59.13)	4879 (21.70)	6.09 (9.80)	2272	6.3	0.497 (0.302)	14.11 (2.78)	185 (85)	62 (16)	28.76 (97.38)
50% of Pull at Maximum Power—5th (B2) Gear									
54.95 (40.97)	3264 (14.52)	6.31 (10.16)	2298	4.0	0.579 (0.352)	12.16 (2.39)	185 (85)	62 (17)	28.75 (97.34)
75% of Pull at Reduced Engine Speed—6th (B3) Gear									
79.33 (59.15)	4860 (21.62)	6.12 (9.85)	1773	6.1	0.451 (0.274)	15.57 (3.07)	186 (85)	65 (19)	28.73 (97.29)
50% of Pull at Reduced Engine Speed—6th (B3) Gear									
54.91 (40.94)	3263 (14.51)	6.31 (10.15)	1788	3.9	0.501 (0.305)	14.02 (2.76)	183 (84)	63 (17)	28.74 (97.33)

Location of tests: Nebraska Tractor Test Laboratory, University of Nebraska, Lincoln, Nebraska 68583-0832

Dates of tests: April 4 - 11, 2013

Manufacturer: Industrious John Deere, Boulevard Valdez Sanchez # 470, Saltillo, Coahuila CP25005 Mexico

FUEL, OIL and TIME: Fuel No. 2 Diesel Specific gravity converted to 60°/60°F (15°/15°C) 0.8416 Fuel weight 7.007 lbs/gal (0.840 kg/l) Oil SAE 15W-40 API service classification CJ-4 Transmission and hydraulic lubricant John Deere Hy-Gard fluid Front axle lubricant John Deere Hy-Gard fluid Total time engine was operated: 15.0 hours

ENGINE: Make John Deere Diesel Type Four cylinder vertical with turbocharger and air to air intercooler Serial No.*PE4045R020706* Crankshaft lengthwise Rated engine speed 2200 Bore and stroke 4.19 x 5.00" (106.5 mm x 127.0 mm) Compression ratio 19.0 to 1 Displacement 276 cu in (4525 ml) Starting system 12 volt Lubrication pressure Air cleaner two paper elements and aspirator Oil filter one full flow cartridge Oil cooler engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil Fuel filter two paper elements Fuel cooler radiator for pump return fuel Exhaust regenerative particulate filter integrated within an underhood muffler Cooling medium temperature control two thermostats and variable speed fan

ENGINE OPERATING PARAMETERS: Fuel rate: 47.4 - 51.4 lb/h (21.5 - 23.3 kg/h) High idle: 2280 - 2320 rpm Turbo boost: nominal 20.3-21.8 psi (140-150 kPa) as measured 22.0 psi (152 kPa)

CHASSIS: Type front wheel assist Serial No.*1P06140DACM050024* Tread width rear 59.5" (1512 mm) to 79.2" (2012 mm) front 60.1" (1527 mm) to 80.3" (2039 mm) Wheelbase 96.5" (2450 mm) Hydraulic control system direct engine drive Transmission selective gear fixed ratio Nominal travel speeds mph (km/h) first 1.92 (3.09) second 2.65 (4.26) third 3.41 (5.48) fourth 4.51 (7.26) fifth 6.23 (10.03) sixth 8.00 (12.88) seventh 10.82 (17.42) eighth 14.94 (24.05) ninth 19.20 (30.90) reverse 1.99 (3.20), 2.74 (4.41), 3.52 (5.67), 4.67 (7.51), 6.44 (10.37), 8.28 (13.33), 11.20 (18.02), 15.46 (24.88), 19.87 (31.97) Clutch wet multiple disc hydraulically actuated by foot pedal Brakes wet multiple disc mechanically operated by two foot pedals that can be locked together Steering hydrostatic Power take-off 540 rpm at 2085 engine rpm or 1000 rpm at 2066 engine rpm Unladen tractor mass 10030 lb (4550 kg)

DRAWBAR PERFORMANCE
UNBALLASTED - FRONT DRIVE ENGAGED
MAXIMUM POWER IN SELECTED GEARS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp.°F (°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
4th(B1)Gear									
92.61 (69.06)	8720 (38.79)	3.99 (6.41)	2249	14.7	0.510 (0.310)	13.76 (2.71)	188 (86)	57 (14)	28.79 (97.48)
5th(B2)Gear									
99.35 (74.09)	6498 (28.90)	5.73 (9.22)	2200	9.0	0.478 (0.291)	14.66 (2.89)	187 (86)	59 (15)	28.79 (97.48)
6th(B3)Gear									
99.28 (74.03)	4909 (21.83)	7.59 (12.21)	2200	6.3	0.481 (0.292)	14.59 (2.87)	188 (87)	73 (23)	28.64 (96.97)

UNBALLASTED - FRONT DRIVE ENGAGED-1900 ENGINE RPM

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp.°F (°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
4th (B1)Gear									
92.83 (69.22)	8754 (38.94)	3.98 (6.41)	2248	14.8	0.513 (0.312)	13.67 (2.69)	187 (86)	58 (14)	28.79 (97.48)
5th (B2)Gear									
101.33 (75.56)	7731 (34.39)	4.92 (7.91)	1950	11.9	0.467 (0.284)	15.01 (2.96)	188 (86)	60 (15)	28.77 (97.43)
6th (B3)Gear									
103.95 (77.51)	6082 (27.05)	6.41 (10.32)	1900	8.2	0.453 (0.276)	15.55 (3.06)	191 (88)	72 (22)	28.62 (96.92)

REPAIRS AND ADJUSTMENTS: No repairs or adjustments.

NOTE 1. The manufacturer declares that the average time between active regenerations is 100 hours, while operated in Auto Filter Cleaning Mode, at rated speed, full PTO load, under steady state conditions.

NOTE 2: The performance figures on this report apply to tractors with chassis serial numbers 5xxxx and higher.

REMARKS: All test results were determined from observed data obtained in accordance with official OECD, SAE and Nebraska test procedures. For the maximum power tests the fuel temperature at the fuel pump inlet was maintained at 132°F (55°C). The performance figures on this summary were taken from a test conducted under the OECD Code II test code procedure.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **2058**, Nebraska Summary 878, May 14, 2013.

Roger M. Hoy
Director

M.R. Riley
P.J. Jasa
J.D. Luck
Board of Tractor Test Engineers

TRACTOR SOUND LEVEL WITH CAB	Front Wheel Drive	
	Engaged dB(A)	Disengaged dB(A)
At no load in 4th (B1) gear	78.4	78.5
Transport speed - no load - 9th (C3) gear		82.2
Bystander in 9th (C3) gear		82.3

TIRES AND WEIGHT

Rear Tires - No., size, ply & psi(kPa)
Front Tires - No., size, ply & psi(kPa)
Height of Drawbar
Static Weight with operator - Rear
- Front
- Total

Tested Without Ballast

Two 18.4-38;8;12(85)
Two 14.9-24;8;12(85)
18.0 in (455 mm)
6375 lb (2892 kg)
3830 lb (1737 kg)
10205 lb (4629 kg)

HYDRAULIC PERFORMANCE

CATEGORY: II

Quick Attach: No

Maximum force exerted through whole range: Lift cylinders
 5722 lbs (25.5 kN) 2 x 70 mm
 7304 lbs (32.5 kN) 2 x 80 mm
 2918 psi (201 bar)

i) Maximum observed pressure:

two outlet sets combined

ii) Pump delivery rate at minimum pressure
 and rated engine speed:

21.0 GPM (79.4 l/min)

iii) Pump delivery rate at maximum

hydraulic power:

19.8 GPM (74.8 l/min)

Delivery pressure:

2617 psi (180 bar)

Power:

30.2 HP (22.5 kW)

single outlet set

ii) Pump delivery rate at minimum pressure
 and rated engine speed:

20.9 GPM (79.1 l/min)

iii) Pump delivery rate at maximum

hydraulic power:

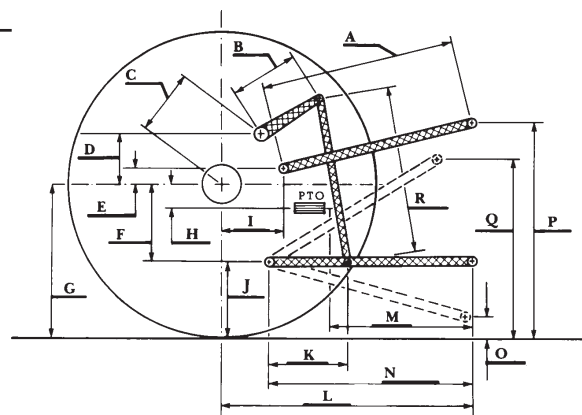
19.3 GPM (73.1 l/min)

Delivery pressure:

2540 psi (175 bar)

Power:

28.6 HP (21.3 kW)



HITCH DIMENSIONS AS TESTED—NO LOAD

	inch	mm
A	24.8	630
B	13.6	345
C	18.7	474
D	14.3	364
E	9.3	236
F	10.8	275
G	32.3	820
H	1.9	48
I	20.9	532
J	21.5	545
K	17.5	444
L	46.7	1187
M	24.9	632
N	33.1	840
O	9.0	230
P	45.5	1155
Q	38.0	965
R	30.5	775



JOHN DEERE 6140D DIESEL

Institute of Agriculture and Natural Resources
 University of Nebraska-Lincoln